COMPUTER INPUT SYSTEM AND METHOD OF USING SAME

This application is a continuation of U.S. patent application Ser. No. 07/901,253 filed Jun. 19, 1992, now abandoned, which is a continuation of U.S. patent application Ser. No. 07/692,657 filed Apr. 29, 1991, now abandoned, which is a continuation of U.S. patent Ser. No. 07/433,029 filed Nov. 7, 1989, now abandoned.

TECHNICAL FIELD

This invention relates to the general field of computer peripheral input systems, and the methods for using such systems and devices. More particularly, the present invention relates to such an input system and method for causing, by user manipulations, information to be communicated to a computer, which can then use the information for displaying computer generated images.

BACKGROUND ART

There have been many different types and kinds of computer input devices for entering information in a computer, by user manipulations of an input device, without the use of a keyboard. Such devices include absolute positioning devices such as light pens and digitized tablets, as well as relative positioning devices such as joysticks, track balls and mouse devices.

While such prior known devices may have been satisfactory for some applications, it would be highly desirable to be able to employ such devices in an interactive mode with a computer, being used with a projector to generate video images on a large screen for viewing by an audience. In this regard, when the computer generated images are projected onto a screen in a darkened room, it would be desirable to enter information into the computer to generate additional images during the presentation. For example, it would be desirable to underline or otherwise highlight the images projected onto the screen.

However, conventional auxiliary input devices are difficult to use in the dark. Also, there are limitations as to what information can be created by the computer in response to an auxiliary input device, such as a mouse.

There are typically two common approaches for projecting computer video signals onto a large viewing surface or screen, for an audience presentation. One method utilizes cathode ray tube based video projectors, such as the projectors manufactured by Electrohome, JVC, and Sony. Another technique utilizes liquid crystal display panels, in conjunction with overhead projectors such as the panels manufactured by Computer Accessories, Kodak and Sharp.

Such projection systems are typically used for demonstrating and training purposes, as well as for electronic slide shows. In the demonstration or training application, the projected image represents a "live" computer screen, and the operation of the computer or a software application program can be demonstrated to a group of people simultaneously. In this regard, the user of the equipment operates a computer, such as a conventional personal computer, in a conventional manner and whatever appears on the computer monitor screen, is duplicated on the large screen for all to see. In such an application, the user or presenter interacts with the computer, and must be positioned at the computer console to demonstrate the application program being executed by the computer.

It would, therefore, be highly desirable to permit a user to interact with the computer, without the requirement of being positioned at or near, a computer console, to modify or highlight the computer generated display images. In this regard, it would be advantageous for the user to be able to walk about the room, or be able to stand near the large screen, to direct the attention of the audience to certain images being displayed. At the same time, the user should be able to enter information conveniently into the computer generating the images, to cause such information to be projected onto the screen, during the presentation.

In the slide show application, a sequence of electronic slides is prepared before showing them to an audience, and stored on a computer memory, such as a floppy disk, or the like. During the presentation, the computer is used to retrieve image information and load it into the computer video memory for display purposes. Thus, the computer functions, in a similar manner as a 35 millimeter slide projector. In this regard, the presenter or user can interact remotely with the computer, by standing in front of an audience and use a wireless remote unit, such as an infrared remote unit, to control the sequencing of the electronic slides. However, whenever the execution of the slide show software must be initiated, or interrupted, the presenter must then go to the computer console to make necessary adjustments. Also, there is no provision for highlighting the visual presentation, or otherwise modifying it in a convenient manner.

Therefore, it would be highly desirable to be able to modify or to highlight the presentation information, without the need of the presenter going to the computer console to enter information for making necessary adjustments. In this regard, it has been difficult, if not impossible for a user to employ a conventional auxiliary input device, such as a mouse, to highlight or accent certain portions of the displayed information by, for example, drawing a circle or a line at or near selected portions of the displayed information to be accented.

Therefore, it would be highly desirable for a user to be able to highlight or accent selected portions of the screen, during the presentation, without using the computer keyboard, and without even going near the computer generating the images being projected onto the large screen. Such modifications or additions to the images being presented should be able to be projected, during any frame of the screen images being projected at the control of the presenter.

Disclosure of Invention

Therefore, it is the principal object of the present invention to provide a new and improved computer input system and method, which permit a user to interact readily with a computer in a more convenient manner.

It is another object of the present invention to provide such a new and improved system and method which enables a user to interact with the computer, while making a presentation to an audience of computer generated information being projected onto a large screen.

Briefly, the above and further objects of the present invention are realized by providing a new and improved computer input system which enables a user to interact more conveniently with a computer generating information.

A computer input system for a computer generating images appearing on a screen. For the purpose of modifying the images appearing on the screen, a light generating device causes an auxiliary light image to appear on the screen. An